WHAT IS CLAIMED IS:

1. A method for determining the position of an object, comprising:

providing one or more electromagnetic (EM) beams;

dispersing said one or more EM beams, respectively, into a scanning space by frequency;

retro-reflecting at least a portion of said respective dispersed beams off an object positioned within said scanning space; and

determining, in response to frequencies associated with said retro-reflected beams, respective angular positions of said object.

2. The method of claim 1, further comprising:

triangulating coordinates of said object using two or more of said respective angular positions.

3. The method of claim 1, further comprising:

triangulating spatial coordinates of said object using three or more of said respective angular positions.

4. The method of claim 1, wherein said one or more EM beams are broadband beams.

5. The method of claim 1, wherein said one or more EM beams are narrowband beams that are tuned or swept across a range of frequencies.

6. The method of claim 1, further comprising:

rotating polarization state of said one or more EM beams; and

rotating polarization state of said retro-reflected beams, such that said one or more EM beams and said retro-reflected beams are treated differently by polarizing beam splitters located in respective paths.

7. A position determination system, comprising:

one or more electromagnetic (EM) sources that provide EM beams;

one or more beam dispersion devices that respectively disperse said one or more EM beams into a scanning space by frequency, wherein said system is configured to be responsive to a retro-reflective object positioned within said scanning space such that said retro-reflective object retro-reflects, at least a portion of said respective dispersed beams; and

one or more receptors that receive said respective retro-reflected beams and provide signals for determining respective angular positions of said retro-reflective object.

8. The system of claim 7, further comprising:

a processor, in signal communication with said one or more receptors, that determines, in response to frequencies associated with said respective retro-reflective beams, said respective angular positions of said retro-reflective object.

9. The system of claim 8, wherein said processor triangulates coordinates of said retro-reflective object using at least two of said respective angular positions.

10. The system of claim 9, wherein said one or more EM sources provide elliptical EM beams so as to improve tracking range of said retro-reflective object along a direction orthogonal to said scanning space.

11. The system of claim 8, wherein said processor triangulates spatial coordinates of said retro-reflective object using at least three of said respective angular positions.

12. The system of claim 8, wherein said one or more EM sources include respective narrowband tunable sources for providing said respective EM beams in respective frequencies.

13. The system of claim 12, wherein said respective frequencies are known and wherein:

said one or more receptors include respective photodetectors;

if said respective photodetectors detect receipt of said respective retro-reflected beams, said processor uses said respective known frequencies to determine respective angular positions.

14. The system of claim 12, wherein:

said one or more receptors include respective wavemeters;

if said respective wavemeters detect receipt of said respective retro-reflected beams, said processor determines that said respective retro-reflected beams have said respective frequencies and uses said respective frequencies to determine respective angular positions.

15. The system of claim 8, wherein:

said one or more EM sources include respective broadband sources that provide said respective EM beams;

said one or more receptors include respective wavemeters that determine frequencies of said respective retro-reflected beams;

if said respective wavemeters detect receipt of said respective retro-reflected beams, said processor uses said frequencies of said respective retro-reflected beams to determine said respective angular positions.

16. The system of claim 7, wherein:

said one or more beam dispersion devices are selected from said group of beam dispersion devices consisting of a diffraction grating, a prism, and a holographic element.

17. The system of claim 7, further comprising:

one or more partially reflective surfaces that direct said respective EM beams from said one or more EM sources to said one or more beam dispersion devices and that pass said respective retro-reflected beams to said one or more receptors.

18. The system of claim 17, wherein said one or more partially reflective surfaces include polarized beam splitters, wherein said system further comprises:

one or more polarization state rotators positioned between respective polarized beam splitters and said retro-reflected object, wherein

said polarization state of said respective EM beams causes said respective polarized beam splitters to reflect said respective EM beams, and wherein

said one or more polarization state rotators rotate said polarization state of said respective EM beams and said respective retro-reflected beams such that said polarization state of said respective retro-reflected beams causes said respective polarized beam splitters to pass said respective retro-reflected beams to said respective receptors.

19. A computer readable medium containing a computer program product for determining said position of a retro-reflective object, said computer program product comprising:

program instructions that compute an angular position according to a frequency value when an input indicating a retro-reflected beam has been detected is received.

20. The computer program product of claim 19, further comprising:

program instructions that compute additional angular positions according to additional frequency values when inputs indicating additional retro-reflected beams have been detected are received; and

program instructions that triangulate coordinates using said angular position and said additional angular positions.

21. The computer program product of claim 19, wherein:

said frequency value is accepted from a tunable electromagnetic source; and

said input indicating said retro-reflected beam has been detected is received from a photodetector.

22. The computer program product of claim 19, wherein:

said frequency value is accepted from a wavemeter; and

said input indicating said retro-reflected beam has been detected is said frequency value itself.